



1,1,1-TRICHLOROETHANE

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Agency for Toxic Substances and Disease Registry ToxFAQs

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This fact sheet answers the most frequently asked health questions (FAQs) about 1,1,1-trichloroethane. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY: Exposure to 1,1,1-trichloroethane usually occurs by breathing contaminated air. It is found in building materials, cleaning products, paints, and metal degreasing agents. It can cause unconsciousness and other effects if inhaled in large amounts, but usually the effects will disappear after exposure ends. This substance has been found in at least 696 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is 1,1,1-trichloroethane?

(Pronounced trī-klōr'ō-ēth'ān')

1,1,1-Trichloroethane is a colorless liquid with a sharp, sweet odor. Even though it is usually found as a liquid, it evaporates quickly and becomes a vapor. It is also known as methyl chloroform, methyltrichloromethane, and trichloromethylmethane; its registered trade names are Chloroethene NU and Aerothene TT. Use of trade names is for identification only and does not imply endorsement by the Agency for Toxic Substances and Disease Registry, the Public Health Service, or the U.S. Department of Health and Human Services.

1,1,1-Trichloroethane does not occur naturally in the environment. It is found in many common products such as glue, paint, industrial degreasers, and aerosol sprays. By 1996, 1,1,1-trichloroethane will no longer be made in the United States due to its effects on the ozone layer.

What happens to 1,1,1-trichloroethane when it enters the environment?

- ☐ Most of the 1,1,1-trichloroethane released into the environment is evaporated into the air, where it may last for about 6 years.
- ☐ It may travel to the ozone layer, where sunlight can break it down into chemicals that destroy the ozone layer.

- ☐ Contaminated water from hazardous waste sites may also contaminate surrounding soil and nearby surface or groundwater.
- ☐ From lakes and rivers, most of the 1,1,1-trichloroethane evaporates quickly into the air.
- ☐ Water can carry 1,1,1-trichloroethane through the soil and into the groundwater where it can evaporate and pass through the soil as a gas, then be released to the air.
- ☐ Organisms living in soil or water may also break down 1,1,1-trichloroethane.
- ☐ It will not build up in plants or animals.

How might I be exposed to 1,1,1-trichloroethane?

- ☐ Breathing contaminated air; it is used in many building materials, so you are likely to be exposed to higher levels indoors than outdoors or near hazardous waste sites.
- ☐ Breathing contaminated air in the workplace while using cleaning products, aerosol sprays, paint, and metal degreasing agents.
- ☐ Ingesting contaminated drinking water and food.
- ☐ Allowing liquids containing it to touch your skin.

How can 1,1,1-trichloroethane affect my health?

If you breathe air containing high levels of 1,1,1-trichloroethane for a short time you may become dizzy, light-headed, and may lose your balance. These symptoms will dis-

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appear if you stop breathing contaminated air. Breathing much higher levels may cause unconsciousness, low blood pressure, and loss of heartbeat. The effects of breathing 1,1,1-trichloroethane for a long time are not known. In animals such as rats and dogs, exposure to high levels damages the breathing passages, affects the nervous system, and causes mild effects on the liver.

After pregnant rats or rabbits were exposed to 1,1,1-trichloroethane, effects on the offspring, such as delayed development and changes in the setting of the bone structure, were usually only seen at levels that were toxic to the mother. It isn't known whether this chemical affects human reproduction or development.

There are no studies in people to tell whether harmful health effects occur from eating food or drinking water contaminated with 1,1,1-trichloroethane. Placing large amounts of it in an animal's stomach has caused effects on the nervous system, mild liver damage, unconsciousness, and even death.

If your skin comes into contact with 1,1,1-trichloroethane, you might feel some irritation. Studies in animals have shown that skin contact may affect the liver and very large amounts may cause death.

How likely is 1,1,1-trichloroethane to cause cancer?

No information is available to show that 1,1,1-trichloroethane causes cancer. The International Agency for Research on Cancer (IARC) has determined that 1,1,1-trichloroethane is not classifiable as to its human carcinogenicity.

Is there a medical test to show whether I've been exposed to 1,1,1-trichloroethane?

Breath, blood, and urine samples can be tested to determine if you have recently been exposed to 1,1,1-trichloro-

ethane. These tests can sometimes estimate how much 1,1,1-trichloroethane has entered your body. Blood and breath tests need to be taken within a few hours of exposure, and urine tests need to be taken within 1–2 days. These tests, however, can't tell whether your health will be affected as a result of your exposure. The exposure tests aren't routinely available in hospitals and clinics because special equipment is required to perform them.

Has the federal government made recommendations to protect human health?

The EPA has set a limit of 0.2 parts of 1,1,1-trichloroethane per million parts of drinking water (0.2 ppm). EPA has recommended that the level of 1,1,1-trichloroethane in lakes and streams shouldn't exceed 18 ppm to prevent possible health effects from drinking water or eating contaminated fish.

The Occupational Safety and Health Administration (OSHA) has set a workplace exposure limit of 350 ppm for an 8-hour workday, 40-hour workweek.

Glossary

Carcinogenicity: Ability of a substance to cause cancer.

CAS: Chemical Abstracts Service.

Long time: Lasting one year or longer.

ppm: Parts per million.

Short time: Lasting 14 days or less.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for 1,1,1-trichloroethane. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-639-6359. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html> ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

